

# **Update on DOE's National Waste Disposition Plans**

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Site Specific Advisory Board Chairs Meeting  
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# *Discussion Outline*

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- ❖ DOE Waste Management Policy, Plans and Assets
- ❖ National Disposition Strategies
- ❖ Program Updates by Waste Type
  - Low-Level Waste /Mixed Low-Level Waste (LLW/MLLW)
  - Transuranic waste (TRU)
  - Spent nuclear fuel (SNF) and high-level waste (HLW)
  - Special nuclear material (SNM)
  - Other waste types



# *Overview of DOE Disposition Efforts*

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- ❖ Majority of waste disposition efforts within DOE are responsibility of Environmental Management (EM)
  - Major waste management facilities managed by EM
  - Planned transfer of cleanup activities at NNSA sites likely delayed
- ❖ EM project is well defined with controlled scope, cost and schedule
- ❖ EM scope includes remediation and processing of approximately:
  - 25 tons of plutonium
  - 108 tons of plutonium residues
  - 88 million gallons of radioactive liquid waste
  - 2,500 tons of spent nuclear fuel
  - 137,000 cubic meters of transuranic waste
  - 1.3 million cubic meters of low-level waste
  - 324 nuclear facilities, 3,300 industrial facilities, hundreds of radiological facilities



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# *DOE/EM Waste Management Policy (DOE Order 435.1)*

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## ❖ LLW and MLLW:

- If practical, disposal on the site at which it is generated
- If on site disposal not available, at another DOE disposal facility
- At commercial disposal facilities if compliant, cost effective, and in best interest of the Department

## ❖ TRU waste:

- If defense TRU, disposed at Waste Isolation Pilot Plant, Carlsbad, New Mexico
- If non-defense TRU, safe storage awaiting future disposition

## ❖ HLW and SNF

- Stabilization, if necessary, and safe storage until geologic disposal is available



# *DOE's Waste Management Assets*

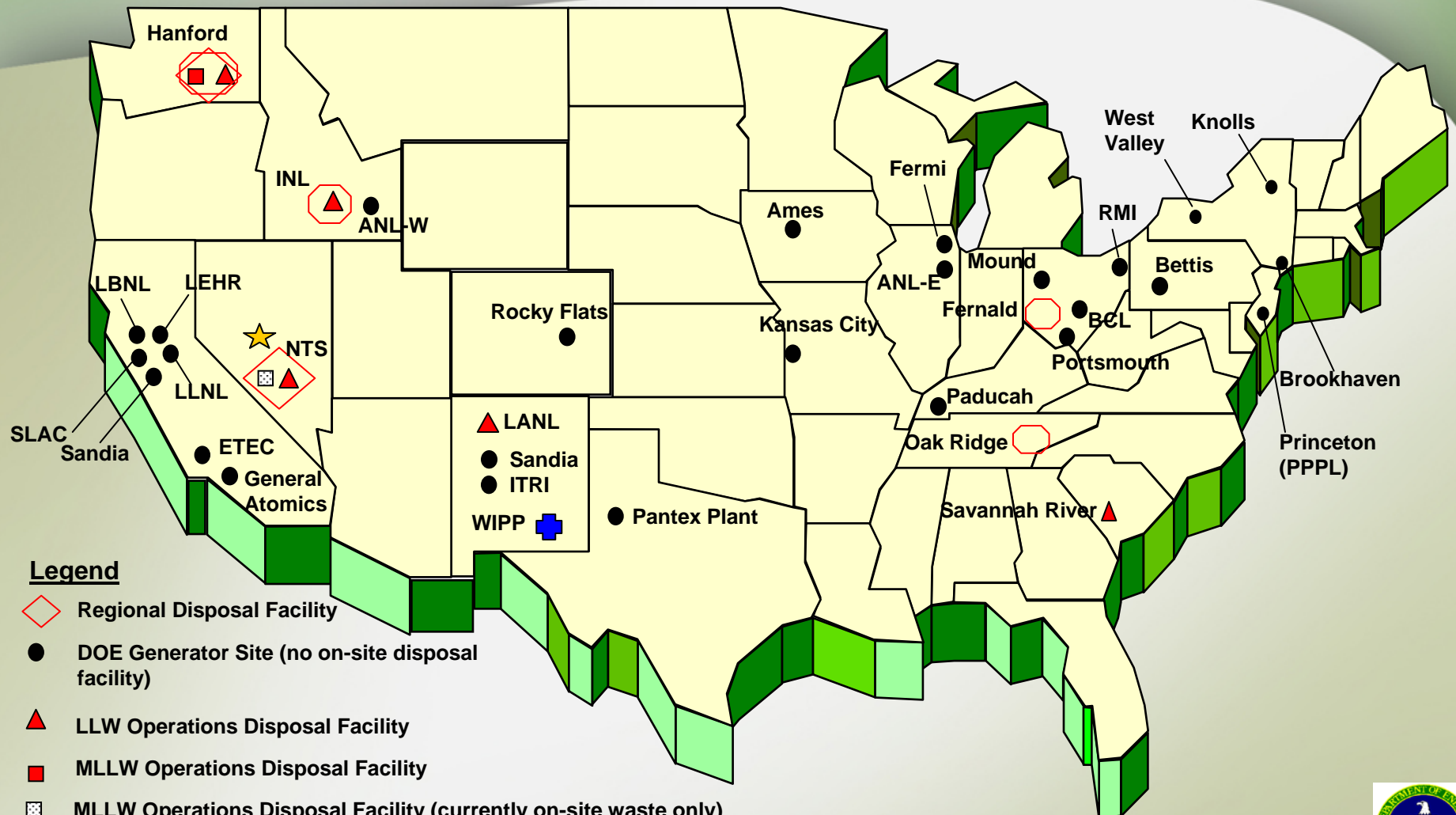
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- ❖ Multiple onsite disposal cells (mostly CERCLA) for site-specific remediation wastes
- ❖ Two regional LLW/MLLW disposal facilities – Hanford and Nevada Test Site (NTS)
  - *Hanford currently limited to onsite LLW and MLLW*
  - *NTS currently limited to regional LLW operations; regional MLLW disposal operations to begin in FY 2006*
- ❖ National repository for defense TRU waste – WIPP (Carlsbad, NM)
- ❖ TSCA Incinerator (Oak Ridge, TN)
- ❖ However, EM also disposes of large volumes of LLW and MLLW at commercial facilities





# DOE's Waste Disposal Facility Configuration



## Legend

- ◇ Regional Disposal Facility
- DOE Generator Site (no on-site disposal facility)
- ▲ LLW Operations Disposal Facility
- MLLW Operations Disposal Facility
- + MLLW Operations Disposal Facility (currently on-site waste only)
- ⬡ CERCLA Disposal Facility
- + Waste Isolation Pilot Plant (WIPP)
- ★ Planned geologic repository

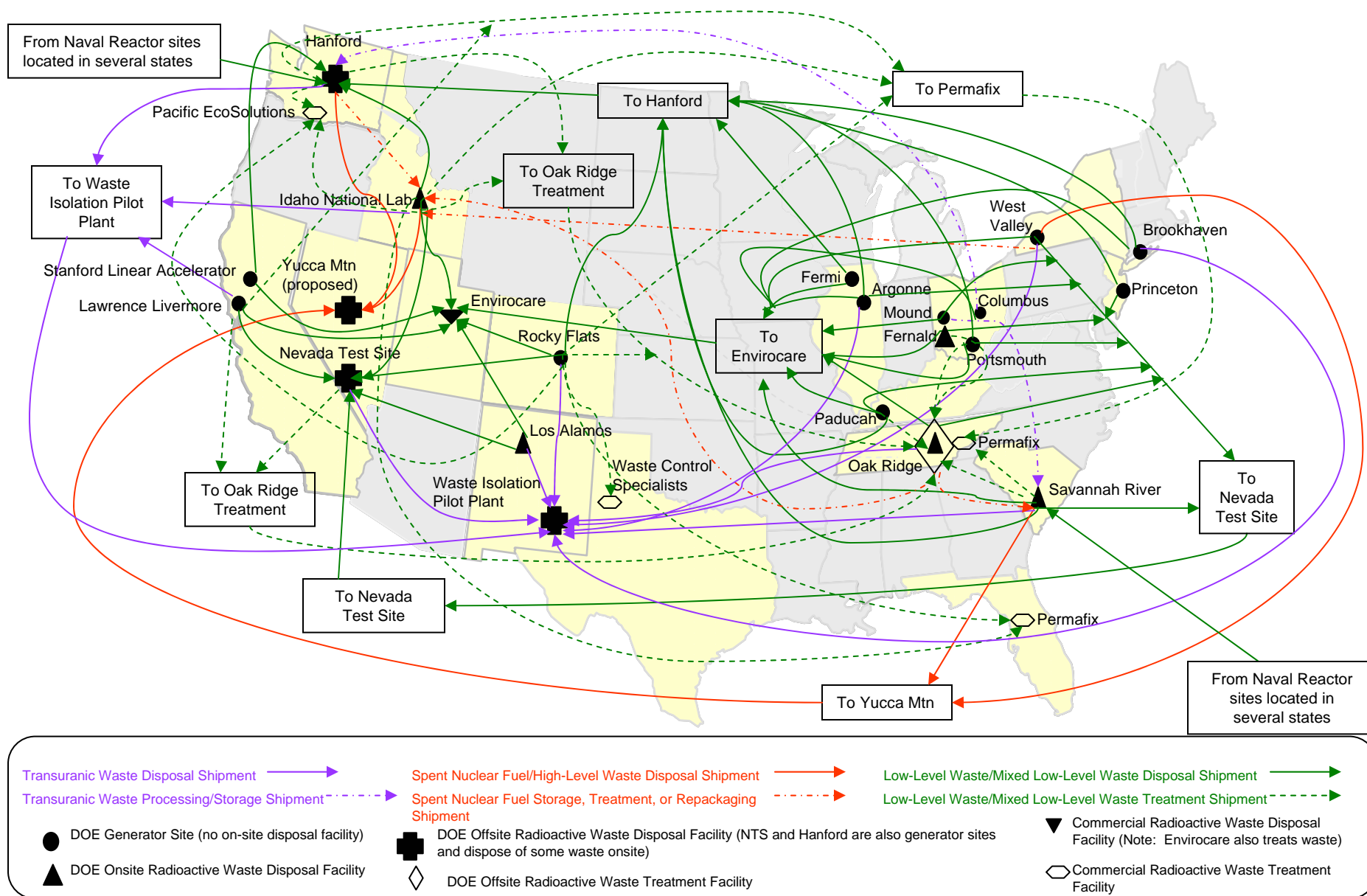


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***Major DOE Radioactive Waste Transfers*** (includes commercial facilities)

Shipment lines do not portray actual transportation routes. This map is not inclusive of all past or planned shipments.



## *National disposition strategies*

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- ❖ Ensure disposition paths are identified for all EM waste and materials
- ❖ Provide and coordinate disposition resources
- ❖ Optimize operations of DOE's waste management facilities
- ❖ Improve EM's transportation infrastructure and ensuring all shipments are completed safely and compliantly
- ❖ Identify opportunities for acceleration and efficiency
- ❖ **Respond to dynamic circumstances**
- ❖ **Address “gridlock” and obstacles**



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# *National strategies are project management tools*

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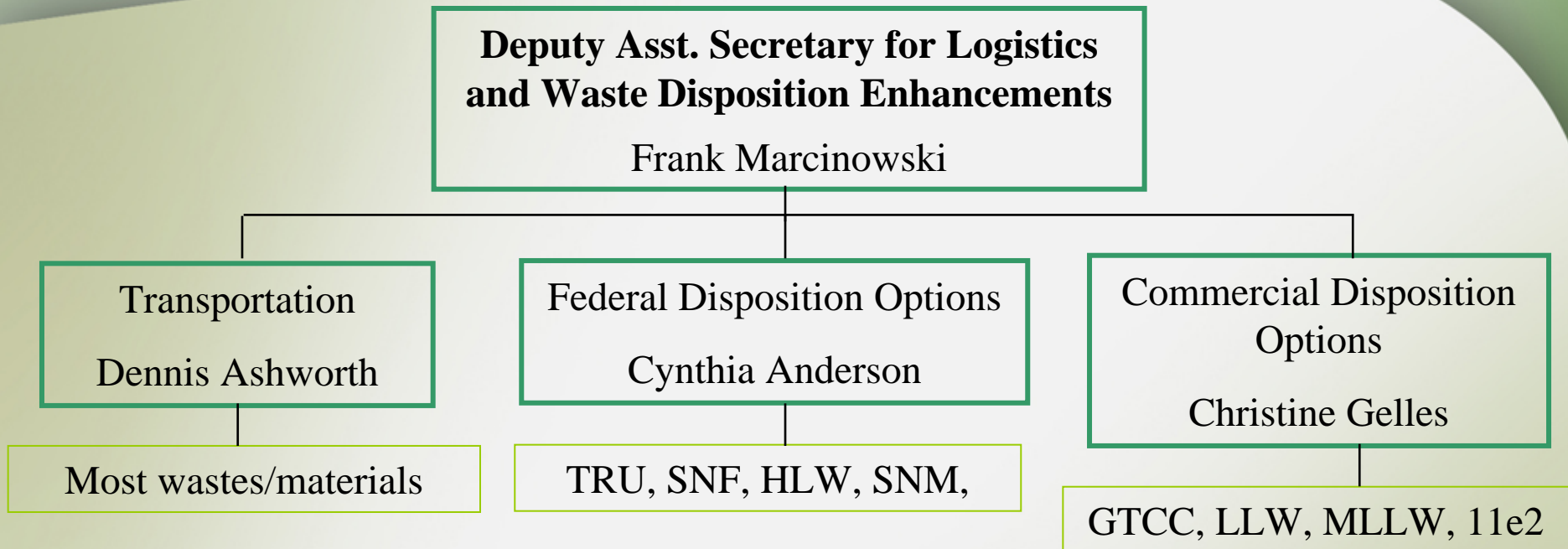
- ❖ Provide discipline, formality, and structure
- ❖ Document, at a complex-wide level, the scope, schedule and cost of waste disposition efforts
- ❖ Built for each major waste type
  - LLW/MLLW (includes Greater-Than-Class C (GTCC) and by-product material)
  - Transuranic waste (TRU)
  - Spent nuclear fuel (SNF)
  - High level waste (HLW)
  - Special nuclear materials (SNM)
  - Other waste types
- ❖ Details tailored for each type, according to project complexity and risk



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# *Integration is focus of the EM-10 organization*



- Developing national strategies – business cases – for transportation and waste/material disposition
- Integrating sites' parallel efforts to accelerate cleanup
- Enabling and improving on baseline plans



# *Disposition accomplishments in FY 2005*

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- ❖ Significantly increased volumes disposed while reducing transportation incident rate
  - □ Incident rate 35% below FY 2004 rate!
- ❖ Worked off vast majority of stored legacy waste
- ❖ Completed TRU waste and MLLW shipments from Rocky Flats
- ❖ Completed TRU waste shipments from Mound (to SRS)
- ❖ Completed removal of all legacy TRU waste from Brookhaven National Laboratory and U.S. Army Material Command
- ❖ Resolved large quantities of “orphan wastes” at closure sites
  - Identified commercial receiver sites for Fernald Silo residues



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# *Transportation safety is critical – and is improving!*

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❖ In FY 2004, EM had 23 reported off-site incidents.

- Most significant incident was the release of radioactive material onto road surfaces at Oak Ridge (penalties assessed against subcontractor)
- Other areas of concern -- load securement and shipping paper violations

❖ In FY 2005 year-to-date, EM has had 15 reported incidents

- Each incident is reviewed
- Corrective actions and lessons learned shared among sites



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## *Program Updates – LLW/MLLW*

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- ❖ Stores of legacy waste nearly disposed
- ❖ Planned start of regional MLLW disposal operations at NTS in early 2006
- ❖ Commercial waste processors obtaining NTS certification
- ❖ Extension of TSCA Incinerator operations
- ❖ Congressional direction to report on life-cycle cost of waste disposal
- ❖ Increased cooperation among Federal agencies
  - First joint DOE-DOD (FEDRAD 2005) held in May 2005
- ❖ Initiation of NEPA for Greater-Than-Class C waste disposition
  - Advance Notice of Intent published May 2005
- ❖ Stakeholders call for “national forum” and “formal integration” of DOE waste management plans
  - Validates EM plans for National Disposition Strategy



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## *Program Updates – Transuranic (TRU) Waste*

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- ❖ Rocky Flats Project Office TRU shipments completed in April 2005
- ❖ Mound rail shipments completed in August 2005
- ❖ Idaho National Laboratory (INL) TRU shipments from the Advanced Mixed Waste Treatment Project are at 11+ shipments per week and expect to ramp up further. INL is the priority for EM to meet the 6,000 cubic meter milestone with the State of Idaho
- ❖ Nevada Test Site expected to complete TRU shipments by end of calendar year 2005
- ❖ Savannah River Site shipping 2 to 4 per week; shipments were impacted by Hurricane Katrina
- ❖ Hanford shipping 3 to 4 shipments per week
- ❖ LANL resumed shipments in April 2005 and is currently making 2 to 3 shipment per week



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# WIPP Accomplishments to Date

- ❖ Since March 1999, approximately 31,325m<sup>3</sup>) of contact-handled TRU waste shipped and disposed at WIPP.
- ❖ Over 3,911 truck shipments from 8 sites to WIPP
  - RFPO, SRS, INL, LANL, RL,
  - ANL-E, LLNL, NTS
- ❖ Eleven small quantity sites completed (Teledyne-Brown, ARCO, Energy Technology Engineering Center, Missouri University Research Reactor, Lawrence Berkeley National Laboratory, Lovelace Respiratory Research Institute, U.S. Army Material Command, Brookhaven National Laboratory, Mound Site (Argonne National Laboratory-East, & Lawrence Livermore National Laboratory – legacy TRU only))

Information as of 9/12/05



Departure of Final RFETS Shipment



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# Total Transuranic (TRU) Waste Shipments By Site



**3,911**

Total shipments  
as of 09/12/05



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## *Program Updates – SNF/HLW*

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- ❖ For Spent Nuclear Fuel (SNF) for Idaho National Laboratory and the Savannah River Site, consolidated SNF and reduced the number of wet storage basins to 1 per site
- ❖ Path forward is to package the SNF at Idaho and SRS for disposal at Yucca Mountain
- ❖ At Hanford, all SNF removed from the K-Basins and placed in approximately 500 Multi-canister Overpacks (MCOs)
- ❖ Path forward would be to ship MCOs to Yucca Mountain for disposal
- ❖ SNF/HLW senior management policy meeting held in Washington, D.C., on September 13-14, 2005



## *Program Updates – SNF/HLW (cont'd)*

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- ❖ For High-Level Waste (HLW) at the Savannah River Site, DOE produced approximately 2,000 HLW canisters at the Defense Waste Processing Facility
- ❖ At Hanford, DOE is constructing the waste treatment plant for processing waste and is currently addressing cost and schedule issues on that project
- ❖ At Idaho, DOE is analyzing path forward for disposing of the calcine waste





## *Program Updates – SNM (Pu Disposition)*

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- ❖ Senior Department-wide Committee (Nuclear Materials Disposition and Consolidation Coordination Committee) established to address security, storage, transportation, disposition issues
  - initial emphasis on disposition path for surplus and excess plutonium
- ❖ GAO reports on plutonium disposition
  - "Securing U.S. Nuclear Materials - DOE Needs to Take Action to Safely Consolidate Plutonium" (July 2005; addresses issues for shipping Hanford plutonium to SRS and storing plutonium at SRS)
  - Draft "Statement of Facts - Plutonium Storage at DOE's Savannah River Site" (May 2005, restricted distribution; addresses issues for storing plutonium at SRS)



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## *Program Updates – SNM (Pu Disposition) (cont'd)*

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- ❖ Defense Nuclear Facilities Safety Board report - Plutonium Storage at Department of Energy's Savannah River Site" - Second Annual Report to Congress (June 2005; addresses issues for DOE's plan for storage and disposition of excess plutonium vs.incorporation in MOX fuel, and consolidation of excess plutonium at SRS)
- ❖ EM Team formed on surplus plutonium disposition - initial emphasis on options for surplus plutonium disposition and on site disposition maps



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# BACKUP INFO

## *EM transportation performance is monitored vigilantly*

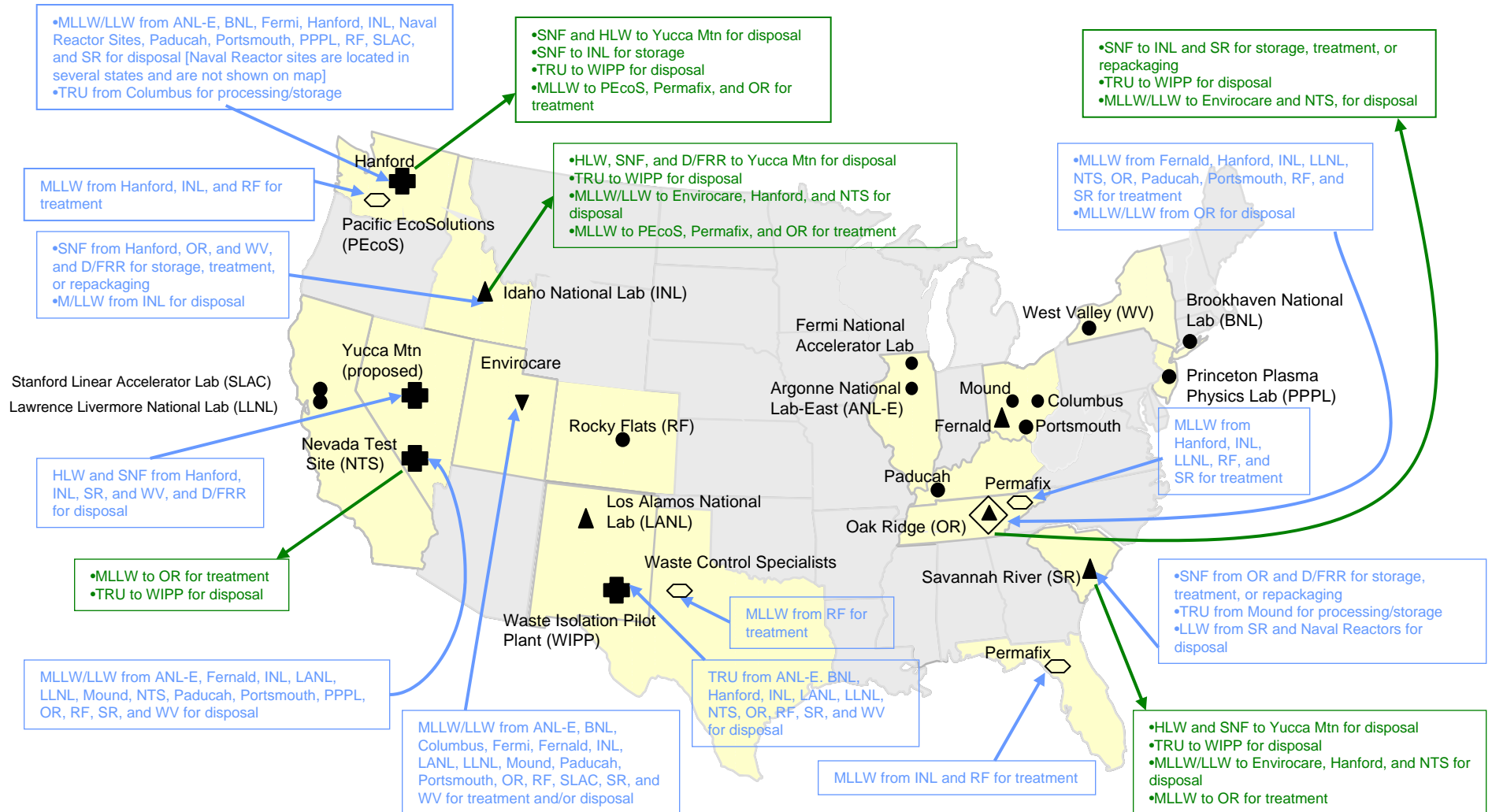
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- EM monitors many aspects of transportation
  - Any suspected or confirmed Hazmat spill
  - Any injury (either outpatient, first aide, minor injury, hospitalization, or fatality)
  - Any property damage to the transport vehicle or package
  - Any fines or violations
  - Any package damage or load securement problem
  - Any route deviation (for TRANSCOM-monitored shipments) or security breach
  - Any road closure or public evacuation
  - Any local or national media coverage



# Major DOE Radioactive Waste Transfers (includes commercial facilities)

Waste exports from DOE Generator Sites are shown in the incoming shipment boxes for the treatment and disposal facilities. This map is not inclusive of all past or planned shipments.



Low-Level Waste (LLW)	Mixed Low-Level Waste (MLLW)	High-Level Waste (HLW)	Spent Nuclear Fuel (SNF)	Domestic/Foreign Research Reactor Fuel (D/FRR)	Transuranic Waste (TRU)
● DOE Generator Site (no on-site disposal facility)	■ DOE Off-site Radioactive Waste Disposal Facility (NTS and Hanford are also generator sites and dispose of some waste on-site)	▼ Commercial Radioactive Waste Disposal Facility (Note: Envirocare also treats waste)	◊ DOE Off-site Waste Treatment Facility		
▲ DOE On-site Radioactive Waste Disposal Facility			○ Commercial Radioactive Waste Treatment Facility		
					← Incoming Waste Shipment
					→ Outgoing Waste Shipment

EXHIBIT B